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CLICKER'LARLA ÖĞRETİM: AKTİF ÖĞRENME VE ÖĞRETİMSEL YÖNETİME FAYDALI BİR YAKLAŞIM

Özet

Clicker'lar, öğrencilerin aktif bir öğrenme ortamında üst düzey düşünme becerilerini arttırmaya yönelik hazırlanan sorulara isimsiz olarak verdikleri cevaplarla kendi aralarındaki etkileşim ve deneyimlerinin bir sonucu olarak anlamlı öğrenmeye dayalı aktif öğrenmeyi sağlayan öğretim yöntemlerine yardımcı olurlar. Tepkilerini isimsiz olarak yansıtan öğrenciler bu öğretimsel süreç boyunca çoğunlukla rahat olur ve yüksek düzeyde kendine güven duyarlar. Ne kadar mükemmel ve zeki öğretmenler olduğunuz önemli değildir, sınıfınızı yönetmeyi başaramadığınız sürece bir öğretmen olarak yetersiz olursunuz. En iyi öğretmenler, öğrencilerini odaklanmış halde tutmak ve onların sınıf kurallarını takip etmelerini sağlamak için başarılı birer yönetici olmak zorundadırlar. Bu şekilde, öğretmenler aynı zamanda bir motive edici olarak görev yapmış olur. En iyi öğretimi yapmak sadece aktif öğrenme ile ilgili değildir fakat aynı zamanda aktif bir öğretimsel yönetimin sonucudur. Bu makalede, yazarlar Clicker'ın en iyi kullanım yollarını tanımlayıp, detaylandırmakta ve onların etkili öğretim ve yönetimde daha özgün ve faydalı bir şekilde kullanımına yönelik uygulamaları literatürdeki örnekleriyle tartışmaktadır. Sonuç olarak, yazarlar Clicker'ların gerçek bir sınıf ortamında teknolojik bir araç olarak öğrencilerin aktif öğrenmelerini nasıl arttırabileceğini ve öğretimsel aktivitelerin nasıl yönetilebileceği üzerine tartışmalar sunmaktadırlar.

Anahtar kelimeler: Clicker'lar, cevaplama sistemleri, aktif öğrenme, sorgulama, öğretimin yönetimi.

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TEACHING WITH CLICKERS: A USEFUL APPROACH TO ACTIVE LEARNING AND INSTRUCTIONAL MANAGEMENT

Abstract

Clickers help to use instructional methods that make engage students in an active learning process based on meaningful learning as a result of their interactions and experiences within anonymously reflect their real answers to questions that asked to promote higher order thinking skills in an active learning environment. Students who reflect their own responses anonymously are mostly relax and have high self-confidence during that instructional process. No matter how excellent and brilliant a teacher might be if you cannot manage your classroom, you are inadequate as a teacher. Best teachers have to be accomplished managers to keep students focused and follow the classroom rules.In this way, teachers also serve as motivators. To deliver best teaching to students is not just related with active learning but it is also a result of the active instructional management. In this article, the authors describe and detail about using clickers including best ways to use them and literature discussions to explore more useful and creative ways to use of them for effective teaching and management. Finally, the authors discuss how clickers promote students active learning levels in a real classroom environment as a technological tool and how clickers help to manage instructional activities.

Keywords: Clickers, response systems, active learning, questioning, instructional management.

Introduction

Active learning has considered as a process that students can attend and engage actively in a real classroom setting with their thinking and learning process and as a different and useful learning approach from traditional one. Attending a learning experience environment facilitates using of higher order cognitive skills and provides deeper understanding (Mareno, Bremner & Emerson, 2010).

Contrary to common belief, a teacher takes the important role in an active learning environment. A teacher who wants to set and maintain an active learning environment needs to think how he/she can engage his/her students into course and prepare lesson plans well, use technological and instructional tools properly to provide the students active learning activities.

There are a lot of instructional methods and technologies a teacher can use in an active learning process. Technology is improving at a very fast rate, providing a wide range of tools that can be used in education. Of these tools, clickers or other response systems are cheaper and more practical to be used in classrooms and enjoy an ever-increasing interest.

Clickers are simple and economical devices that can be used to engage groups or students in the lesson especially in large classes or crowded groups or to promptly elicit ideas and opinions from them. Clickers can also be efficiently used to increase active learning (Graham et al., 2007; Lynch, 2009; Martyn, 2007; Mayer et al., 2009; DeBourgh, 2008) and instructor-student interaction (Patterson, Kilpatrick & Woebkenberg, 2010) in classes of all types and size (MacArthur & Jones, 2008).

This paper aims to give information on what clickers are, how to use them in teaching in the best possible way and how to improve active learning and provide instructional management by using them. The paper also discusses how they should be put to use best.

It is important in terms of both encouraging the use of clickers in learning environments and setting precedence for future studies.

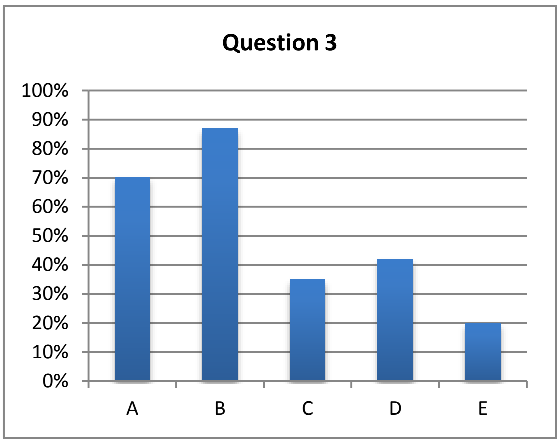
What is the Clickers?

Clickers are used under such names as electronic polling systems (EPS), electronic voting machines (EVM), personal response system (PRS), classroom response systems (CRS) and audience response systems (ARS). Clickers is a set of hardware and software that can be used in classroom environment as a part of teaching activities and in which students respond to questions appearing on a screen through a hand-held remote (see figure 1).



Figure 1. The receiver and Clicker

This is briefly how clickers are used: the teacher includes the questions which he or she thinks will contribute to the aims of the lesson in the presentation. The teachers hands each student a clicker device and students choose their answers to the questions projected on a screen. The receiver in the teacher’s computer receives these answers, analyzes the levels of answering and calculates the percentages of wrong and correct answers and projects these data in the form of a histogram or a bar onto the screen (Figure 2).



Question 3. To increase the effectiveness of teaching in a real classroom setting we should utilize the technological tools

A. Strongly Agree
B. Agree
C. Neutral
D. Disagree
E. Strongly Disagree

Figure 2. Using Clickers As an Assessment Tool During The Course

"The clicker system consists of three parts: clickers (small remote control-like devices used by students), receivers (which receive the clickers' signals), and a clicker program that is contained on the instructor's computer" (Hatch, Jensen & Moore, 2005, p. 36). While a clicker's software relates to the part in which a teacher prepares their presentation and questions, its hardware relates to the equipment that allows these things to happen. When used in classroom environments, the data recorded by the teacher can be used as a tool of assessment (see figure 2).

Clickers both make it possible to collect responses from students anonymously and quickly during lesson and make evaluations based on the responses projected on the screen everybody can see (Bruff, 2009). In this process, a teacher can see the students' levels of learning and encourage shy students to respond to questions(Armstrong, 2008).

Clickers maintain an active and lively interaction in the classroom since they allow to receive a quick feedback to the questions a teacher poses. Also, teachers use clickers to record data and use them later to evaluate classroom activities. Clickers are both economic to use in the classroom and very easy to understand and therefore, they can be used as a part of teaching strategies in education. There are studies which suggest that they can be used efficiently especially in higher education (Beckert, Fauth & Olsen, 2009; Caldwell, 2007; Schackow et al., 2004; Herreid, 2006).

Since clickers are generally used in a way in which questions are answered, they can turn into tools that stimulate high levels of thinking skills if the teacher poses the questions properly. Hoffman and Goodwin (2006), and Brown et al. (2008) regard clickers as an important indicator of students' learning (Hoffman & Goodwin, 2006; Brown, Ruschhaupt & Birch, 2008). In addition, they can be used as research tools due to their capacity to store such information about students as grade level, name, age, etc.).

Using Clickers for Active Learning

"Active learning is generally defined as any instructional method that engages students in

the learning process" (Prince, 2004, p.223). In its widest sense, active learning is a process in which students actively participate and take responsibility in their own learning. Since this is not possible in traditional classrooms, classrooms suitable for active learning can be designed based on various educational theories.

One of the challenges a teacher, who aims to maintain active learning, has to face is shy students lacking in self-confidence. Although there are a lot of strategies and methods that can improve students' thinking processes and their skills of controlling their own learning, there are a lot of factors that have an influence on using these strategies and methods effectively and usefully in classroom activities. Among these, the method a teacher employs and his or her grasp of the technology involved, convenience of the classroom, student background and the socio-psychological condition they are in can be cited. Any teaching activity will have difficulty attaining its goal if students have problems related to their emotional status (lack of self-confidence, diffidence, anxiety, etc.) no matter how well a teacher employs their skills of teaching strategies and how convenient classroom environments are. Because some students may hesitate to speak out their correct answers or they may be hesitant to ask for explanations to what the fail to understand due to the problems related to the classroom, social environment or their own emotional states. What is more, introvert or diffident students may shrink from speaking completely. In such cases, such students may drift from the lesson unnoticed and lose their motivation in the lesson altogether and fall behind other students.

The persistence of this situation will inevitably affect their general attitudes towards the subject. This challenge can be overcome through clickers because, while answering questions anonymously and instantaneously, students can both take active part in the learning experience in the classroom and improve their self-confidence in responding to the questions since they receive instant feedback to the answers they give. Clickers can be used as an auxiliary tool in the effective application of teaching strategies, which are one of the most important elements of active learning. "There is great agreement that CRSs promote learning when coupled with appropriate pedagogical methodologies" (Fies & Marshall, 2006, p.106). A teacher can both measure the learning levels of students with his or her questions while applying employing his or her instructional method and use them as a tool to stimulate advanced thinking skills of students. Asking effective questions stimulate such advanced thinking skills as critical thinking. The quality and level of questions can be modified by the teacher according to the behavior the teacher aims to stimulate and can be used practically. The students who are constantly alert and interactive by the raisings from the teacher will better learn and recollect the information presented. Constant and instant feedback may help students to continuously control their levels of understanding. In this case, clickers can be used as effective tools to equip students with self-regulative skills. The teacher, by preparing questions that enable students to control their own learning and using them through clickers, can help students to improve their levels of self-regulation. Bruff states that teachers can reap the following benefits by using clickers:

> "Maintain students' attention during a lecture; Promote active student engagement during a lecture; Promote discussion and collaboration among students during class; Encourage participation from each and every student in a class; Create a safe space for shy and unsure students to participate in class; Check for student understanding during class;Teach in a way that adapts to the immediate learning needs of his or her students; Take attendance and to rapidly grade in-class quizzes; Add a little drama to class (There is often a

sense of expectation as wait for the histogram to appear showing how their classmates answered a given question)http://cft.vanderbilt.edu/teaching-guides/technology/clickers/#why ”[7].

They can pose various questions through clickers. For example, yes-no questions, multiple-choice questions, assessment questions, the questions by which students reflect their opinions on a given topic, revision questions, questions directed at upper levels of bloom taxonomy which will lead to advanced thinking skills or questions monitoring thinking and learning process students experience during a task intending to improve their self regulation/metacognitive skills can be posed. Although there are very good ways of using clickers in the classroom, a teacher may come up with novel ways of using them. The best ways suggested by Robertson and Turning technologies are summarized in the table below.

Table 1. The best ways of using clickers in a classroom setting*

1. Keep questions short to optimize legibility.
2. Have no more than five answer options.
3. Do not make your questions overly complex.
4. Not all questions have to have a right answer. Use the response system to reveal opinions and insights.
5. Assign point values to questions instead of simply setting them as right or wrong. Use point values to award attendance and/or participation points.
6. Include short bursts of 3-4 questions mixed in with other more traditional presentations and activities to keep your students and participants engaged.
7. Allow time for discussion when designing your presentation.
8. Do not ask too many questions‹ use them sparingly to highlight the points you most want to emphasize.
9. Allow plenty time to set up and try out the system before the session begins.
10. Rehearse your presentation to ensure that it will run smoothly.
11. Provide clear instruction to your audience.
12. Include an "Answer Now" prompt to differentiate between lecture slides and interactive polling slides.
13. Use a "Correct Answer" indicator to visually identify the appropriate answer.
14. Encourage active discussion with your audience. (Robertson)
*Tips 1-3 and 7-11 and 14 came from Robertson (2000); Tips 4-6 and 12-13 came from Turning Technologies.

Best results will be obtained if the usage of clickers is planned beforehand taking optimal benefit into account. If, however, the teacher wants to allow class discussion, they should not, while deciding whether discussion is worthwhile by paying attention to the differences between the answers from the students, let students see the differences between their answers (Crouch et al., 2007).

Conclusion

In conclusion, technology is a great aid to the teacher. Technology will have a greater effect if it is used properly and in support of instructional methods. Clickers are tools that can be effectively used to increase the level of active and meaningful learning. They are easy and fun to use both for teachers and students since they are cheaper and easier to use than most technological devices. Studies directed at making clickers, whose positive effects on active learning have been proved by numerous studies, common should be promoted. This paper aims both to introduce clickers and discuss their beneficial effects on active learning and instructional management. Also, studies to find out novel applications of clickers and effective strategies of using them should be done. However, their best applications should be established by comparing their impacts on different subjects at all teaching levels.Apart from active learning, studies concerning their usage as a tool to increase students' metacognitive skills or to reduce problem behaviors in the classroom should also be designed.

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